

Application No. 10/678,303
Reply to Office Action of October 18, 2005

Docket No.: A8319.0025/P025

AMENDMENTS TO THE CLAIMS

1. – 6. (Cancelled).

7. (Currently Amended) Elements according to claim ~~[[6]]~~ 10, wherein said second electrode is provided so as to surround said side surface around said semiconductor device and said first electrode, said semiconductor device~~[[,]]~~ and said second electrode are coaxially arranged.

8. (Cancelled).

9. (Currently Amended) An element according to claim ~~[[8]]~~ 22, wherein a width of said first electrode is narrower than that of said second electrode.

10. (Currently Amended) A plurality of radiation detector elements, each comprising:

a rod-shaped first electrode;

a semiconductor device which surrounds an ambience of said first electrode and comes into contact with said first electrode and into which radiation enters; and

a second electrode provided for a side surface of said semiconductor device,

wherein a part of said first electrode is projected from an edge surface of said semiconductor device where said second electrode is not provided;

~~[[said]]~~ a plurality of radiation detector elements ~~according to claim 6 or 8~~, in which one of said first electrode and said second electrode is a signal output electrode for outputting a radiation detection signal and the other electrode is a voltage applying electrode;

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an element holding member which detachably holds said plurality of radiation detector elements and has a plurality of first electric connecting portions which [[are]] come into contact with said signal output electrode and a plurality of second electric connecting portions which [[are]] come into contact with said voltage applying electrode;

an integrated circuit for processing the radiation detection signal outputted from said signal output electrode of each of said plurality of radiation detector elements; and
an integrated circuit holding member on which said integrated circuit is arranged,

wherein said element holding member has a plurality of first connector portions separately connected to said plurality of first electric connecting portions and a second connector connected to each of said plurality of second electric connecting portions, and

said integrated circuit holding member has a plurality of third connector portions which are connected to said integrated circuit and are separately and detachably attached to said plurality of first connector portions and a fourth connector portion which is detachably attached to said second connector and applies a voltage.

11. (Original) A detector according to claim 10, wherein a collimator in which a plurality of radiation paths provided in correspondence to said plurality of radiation detector elements are formed is arranged on the radiation entering side of said plurality of radiation detector elements.

12. (Original) A detector according to claim 11, wherein said plurality of radiation paths are radially arranged in said collimator and said radiation detector elements are arranged so that a longitudinal direction of said radiation detector element is located on an extension line of said radiation path.

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13. (Original) A detector according to claim 11, wherein said element holding member has a plurality of holding portions to detachably hold said radiation detector elements and said first electric connecting portion and said second electric connecting portion are provided for each of said holding portions.

14. (Original) A detector according to claim 13, wherein in said holding portion, a first hole portion in which a portion including said semiconductor device of said radiation detector elements is inserted and a second hole portion in which a projecting portion of the first electrode of said radiation detector element is inserted are serially arranged, one of said first electric connecting portion and said second electric connecting portion is arranged in said first hole portion, and the other electric connecting portion is arranged in said second hole portion.

15. (Currently Amended) A radiation detector comprising:
a shield which shields [[the]] radiation and has a plurality of through-holes;
a rod-shaped first electrode disposed in each of said through holes, a semiconductor device which surrounds an ambience of said first electrode and comes into contact with said first electrode and into which radiation enters, and a second electrode provided for a side surface of said semiconductor device, wherein a part of said first electrode is projected from an edge surface of said semiconductor device where said second electrode is not provided;

~~said radiation detector elements according to claim 6 or 9 arranged in each of said through-holes; and~~

an element holding member to which said radiation detector elements are detachably attached;

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wherein a first electric connecting portion which comes into contact with said first electrode is provided for said element holding member and a second electric connecting portion which comes into contact with said second electrode is provided in each of said through-holes of said shield;

an integrated circuit for processing a radiation detection signal outputted from said signal output electrode of each of said plurality of radiation detector elements;

an integrated circuit holding member on which said integrated circuit is arranged.

wherein said element holding member has a plurality of first connector portions separately connected to said plurality of first electric connecting portions and a second connector connected to each of said plurality of second electric connecting portions, and

said integrated circuit holding member has a plurality of third connector portions which are connected to said integrated circuit and are separately and detachably attached to said plurality of first connector portions and a fourth connector portion which is detachably attached to said second connector and applies a voltage.

16. – 17. (Cancelled).

18. (Original) A detector according to claim 15, wherein a length of said shield in an axial direction of said through-hole is equal to or longer than that in said axial direction of said semiconductor device of said radiation detector elements.

19. (Original) A detector according to claim 15, wherein a length of said shield in an axial direction of said through-hole is shorter than that in said axial direction of said semiconductor device of said radiation detector elements.

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20. – 21. (Cancelled).

22. (New) A radiation detector element comprising:

a plurality of semiconductor devices, into which incident radiation enters in a first direction, said plurality of semiconductor devices being arranged in parallel to a second direction, said second direction being perpendicular to said first direction;

a first electrode which is arranged between adjacent semiconductor devices of said plurality of semiconductor devices, said first electrode comes into contact with first side surfaces of said adjacent semiconductor devices, wherein said first electrode is projected from an edge surface of said adjacent semiconductor devices, said edge surface being located along said first direction;

a second electrode which comes into contact with second side surfaces of said adjacent semiconductor devices, said second side surfaces being located along said second direction;

a plurality of radiation detector elements, in which one of said first electrode and said second electrode is a signal output electrode for outputting a radiation detection signal and the other electrode is a voltage applying electrode;

an element holding member which detachably holds said plurality of radiation detector elements and has a plurality of first electric connecting portions which come into contact with said signal output electrode and a plurality of second electric connecting portions which come into contact with said voltage applying electrode;

an integrated circuit for processing the radiation detection signal outputted from said signal output electrode of each of said plurality of radiation detector elements; and

an integrated circuit holding member on which said integrated circuit is arranged,

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wherein said element holding member has a plurality of first connector portions separately connected to said plurality of first electric connecting portions and a second connector connected to each of said plurality of second electric connecting portions, and said integrated circuit holding member has a plurality of third connector portions which are connected to said integrated circuit and are separately and detachably attached to said plurality of first connector portions and a fourth connector portion which is detachably attached to said second connector and applies a voltage.

23. (New) A detector according to claim 22, wherein a collimator, in which a plurality of radiation paths provided in correspondence to said plurality of radiation detector elements are formed, is arranged on a radiation entering side of said plurality of radiation detector elements.

24. (New) A detector according to claim 23, wherein said plurality of radiation paths are radially arranged in said collimator and said radiation detector elements are arranged so that a longitudinal direction of said radiation detector element is located on an extension line of said radiation paths.

25. (New) A detector according to claim 23, wherein said element holding member has a plurality of holding portions to detachably hold said radiation detector elements and said first electric connecting portions and said second electric connecting portions are provided for each of said holding portions.

26. (New) A detector according to claim 25, wherein in said plurality of holding portions, a first hole portion in which a portion including said semiconductor device of said radiation detector elements is inserted and a second hole portion in which a projecting portion of the first electrode of said radiation detector element is inserted are serially arranged, one of said first electric connecting portion and said second electric

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connecting portion is arranged in said first hole portion, and the other electric connecting portion is arranged in said second hole portion.

27. (New) A radiation detector comprising:

- a shield which shields incident radiation and has a plurality of through-holes;
radiation detector elements arranged in each of said through-holes;

- a plurality of semiconductor devices into which said incident radiation enters along a first direction, said plurality of semiconductor devices being arranged in parallel with a second direction which is perpendicular to said first direction;

- a first electrode which is arranged between adjacent semiconductor devices of said plurality of semiconductor devices, wherein said first electrode comes into contact with side surfaces of said adjacent semiconductor devices; and

- a second electrode which comes into contact with second side surfaces of said adjacent semiconductor devices, said second side surfaces being located along said second direction,

- wherein said first electrode is projected from one edge surface located along said first direction of said adjacent semiconductor devices, and wherein a width of said first electrode is narrower than a width of said second electrode;

- an element holding member which detachably holds said radiation detector elements;

- a plurality of first electric connecting portions which come into contact with a signal output electrode disposed at said element holding member, and a plurality of second electric connecting portions which come into contact with a voltage applying electrode in each of said through-holes of said shield;

- an integrated circuit for processing a radiation detection signal outputted from said signal output electrode of each of said plurality of radiation detector elements;

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an integrated circuit holding member on which said integrated circuit is arranged,

wherein said element holding member has a plurality of first connector portions separately connected to said plurality of first electric connecting portions and a second connector connected to each of said plurality of second electric connecting portions, and

wherein said integrated circuit holding member has a plurality of third connector portions which are connected to said integrated circuit and are separately and detachably attached to said plurality of first connector portions and a fourth connector portion which is detachably attached to said second connector and applies a voltage.

28. (New) A detector according to claim 27, wherein a length of said shield in an axial direction of said through-hole is equal to or longer than that in an axial direction of said semiconductor device of said radiation detector elements.

29. (New) A detector according to claim 27, wherein a length of said shield in an axial direction of said through-hole is shorter than that in an axial direction of said semiconductor device of said radiation detector elements.